

NEBC MEETING NEWS

**September 2000.** Les Eastman of Greene, Maine, spoke on the “Naturalists of New England.” Les has been fascinated by the lives of New England naturalists since his teenage days as a rock-hunter. His years of research have brought him to a rich assemblage of personal histories, and he endeavored to share with us a glimpse of these past lives. Any treatment of New England naturalists and natural history includes our mountains. A white man first explored Maine’s highest mountain, Katahdin, in 1804, the same year that President Jefferson sent Lewis and Clark on their expedition to find a passage to the Pacific. Charles Turner of Scituate, Massachusetts, returned from Maine with the first descriptions of the alpine vegetation of Katahdin. In the years to follow, the slopes and summits of Mt. Washington and Mt. Katahdin were further explored by the likes of William Peck (*Geum peckii*), Francis Boot (*Prenanthes bootii*), and Edward Tuckerman. Peck was the first person hired to teach natural science at Harvard. Boot was the world’s expert on *Carex*, and Tuckerman taught at Amherst.

One of the region’s first field naturalists was the Englishman John Josselyn, who traveled to the provinces of Maine in the 1760s upon the instructions of Fernando Gorges, who held the crown leases. Josselyn was based in Saco, Maine, and his *New England Rarities* was brought to light more than a hundred years after its writing. Les introduced us to the likes of Eliza Hamlin, who headed the Gardiner Lyceum—the first incarnation of the University of Maine. Thomas Nuttall traveled to Maine to collect tourmalines for Harvard. John J. Audubon hired a young sharpshooter in Dennysville, Maine, on his way to seek out new birds and mammals in the wilds of Labrador. The Lincoln Sparrow was named in the lad’s honor.

Les presented images of interest and intrigue. Thoreau, the abolitionist, had a wonderful relationship with God-fearing Louis Agassiz, whose Museum of Comparative Zoology at Harvard was funded in large part by southern slave owners. Mainer Edward Sylvester Morse left his native state to study with Agassiz and abruptly left his post at the MCZ when it was discovered that he was carrying on correspondence with Charles Darwin. Morse became the Curator of the Peabody Museum of Salem. Les has an abiding interest in tracking down the scattered remnants of the



old Portland Society of Natural History. The Society's museum was first built in the 1830s, then rebuilt by the great-grandfather of aquatic plant specialist Norman Fassett. The collections of such luminaries as Arthur Stanley Morton, Edward Sylvester Morse, and George Lincoln Goodale were housed at the Portland Society of Natural History. Les has retraced the web of relationships between the naturalists of these far-gone decades in an effort to better understand their work. George Lincoln Goodale wrote the first Catalogue of Maine Plants in 1868, for example, before arranging to bring the world-famous glass flowers to the Peabody Museum at Harvard. Les finished up his presentation with a nostalgic ride down memory lane for Josselyn Botanical Society devotees. Pictures of Merritt Fernald and Kate Furbish riding buckboards in the streets of Fort Kent lent a real sense of historical continuity for all the field botanists in the crowd who have spent time searching for rare plants along the upper St. John River.

Les ended his presentation with a collection of paintings of Mt. Katahdin, beginning with those made by Frederick Church in 1852. Les put great stock in the masters of the 19th century, whether scientists or artists. He lamented the passing of the era of great naturalists, and we were left to imagine that he was quietly urging us to rekindle such broad interest in the diversity and life of our region.

—DON HUDSON, Recording Secretary.

**October, 2000.** Dr. James Fownes, of the Department of Natural Resources Conservation at the University of Massachusetts at Amherst, spoke on "Productivity, disturbance and management of Hawaiian forests." Hawaii's native plant communities are dominated by relatively few species but occur on an extraordinary range of soil ages and types. Much of Dr. Fownes's research involved studying the relationship between soil formation and forest productivity across a broad gradient of soil ages, using *Metrosideros polymorpha* (Myrtaceae), one of the most common dominant forest trees. He tested various hypotheses concerning changes in nitrogen and phosphorus concentrations and availability in soils, and the relationship of plant productivity (as measured by leaf area, leaf turnover, photosynthetic rates) to soils of varying nutrient concentrations. One of his conclusions is that



*Metrosideros* is “frugal”—it conserves nutrients when they are at low concentrations or low availability.

A second research project involved *Acacia koa*, a striking native tree with sickle-shaped phyllodes. Koa is a valuable timber tree and heavily grazed by cattle, threatening its persistence. Like *Metrosideros*, it grows across a wide range of ecological conditions. One experiment involved determining the relationship between tree height, basal area, and productivity across a rainfall gradient on Kauai. Dr. Fownes also looked at the response of Koa growth and reproduction to grazing, to determine if there are strategies that allow these threatened trees to co-exist with grazing in buffers to preserves. He found that grazing, if introduced between five and ten years after the establishment of a stand of Koa, allowed trees to persist. Managed grazing, with periodic cattle exclusion for 5 or more years, appears optimistically to provide an integrated land use with conservation benefits.

—LISA A. STANDLEY, Recording Secretary *pro tempore*.

**November 2000.** Dr. Robert Bertin, Chairman of the Biology Department at the College of the Holy Cross, spoke on “Fifty years of change in the flora of Worcester, Massachusetts.” Robert had something of a mid-life crisis several years ago while assembling his dossier. Would years of investigating sexual systems and plant reproduction survive the cruel knife of history? Would anyone know about his work? Worse yet, would anyone care? So it was that his examination of the flora of Worcester took shape. In a day and age when floristic studies are often overlooked or discounted, Robert recognized the inherent value of such work to colleagues, students, city planners, and conservation-minded citizens. The botanical landscape of Worcester was not very well known, yet the pressure of development was unrelenting. Also, if he undertook the project, he would have ample time in the field—a botanist and ecologist’s dream!

The City of Worcester lies largely in the watershed of the Blackstone River near the geographic center of the state. The western edge of the city sits atop a 1000 ft. escarpment that falls to 300 ft. in the east. Soils are underlain by till and some sorted glacial outwash material. Three bodies of water pre-date European settlement, Lake Quinsigamond, Bell Pond, and parts of Indian Lake. These have been added to by damming during the



past 300 years. Forests, largely comprising black and white oak and hickory, have been reduced in total area and allowed to recover repeatedly over the centuries. The story for wetlands, on the other hand, is grimmer. Whereas 5% of Worcester was wetlands in 1830, less than 1% of it is today. Peat bogs remain in two areas, at Peat Meadow and Broad Meadow Brook. The latter is on land conserved by the Massachusetts Audubon Society. There were perhaps as many as 300 native Americans living in this area when Europeans first passed through in the early 1600s. Native people likely cleared some forest intensively for gardens, while using fire in other places to influence populations of game species. The permanent white settlement commenced in 1713, and the landscape of Worcester has changed dramatically since that time.

Fieldwork on the *Flora* began in 1994 with the collection of records at 77 sites throughout the city. Robert visited these sites, which included ponds, streams, vegetated wetlands, tracts of undeveloped lands, parks, cemeteries, power lines, and railroads to name a few, at different times throughout the year in order to catch plants at their several stages of development. A total in excess of 11,000 records forms the basis of the *Flora*. In addition, Robert gleaned historical information about the flora from the herbaria of Clark University, Harvard University, and the University of Massachusetts at Amherst. All told, 1407 species have occurred within the city limits, of which 1154 were established. Robert has observed 1049 species since 1994. A flora comparable to that of Concord or Nantucket, half the species of Massachusetts are found in Worcester. Over the course of his investigations since 1994, Robert has discovered 83 county records—most waifs and adventives, though a few of these are native species. *Carex* has the most representatives in the flora with 72, followed by *Polygonum*, *Aster (sensu lato)*, *Panicum*, *Viola*, *Solidago*, and *Juncus*, all with 13–19 species. Three species are state-listed and 6 more are candidates for the watch list. If the herbarium records are to be trusted, 17% of the flora has been lost (129 of 781 native species), which is a measure less than that of Staten Island, Middlesex Fells, and Nantucket, but more than that of Concord.

Robert reviewed the highlights of both the fieldwork and the finished *Flora* with a series of elegant slides. His story of botanizing in the rail yard was particularly compelling. Who would



have imagined encountering plant enthusiasts amidst a group of ironworkers?

Copies of Dr. Robert I. Bertin's *The Flora of Worcester, Massachusetts* are available from the Special Publications Committee, New England Botanical Club, Harvard University Herbaria, 22 Divinity Avenue, Cambridge, MA 02138-2020. The cost is \$15.00 for spiral-bound paper copy and \$5.00 for CD-ROM copy.

—DON HUDSON, Recording Secretary.